

Article Overview

Single-mode gigabit SFP transceivers are optical modules designed for long-distance, high-speed data transmission over single-mode fiber, typically supporting 10 km to over 80 km links at 1310nm or 1550nm wavelengths.

Overview

Single-mode SFP (Small Form-factor Pluggable) transceivers are hot-swappable optical modules that convert electrical signals into optical signals and vice versa, enabling network devices like switches, routers, and servers to communicate over single-mode fiber (SMF) with minimal signal loss . They are optimized for long-distance, high-bandwidth transmission, making them ideal for campus backbones, metro networks, and telecom applications .

Key Specifications

- o Fiber Type: Single-mode fiber (core ~9/125um)
- o Wavelengths: Commonly 1310nm or 1550nm
- o Link Distance: Typically 10 km to 80+ km depending on model and optical power budget
- o Connector Types: LC Duplex or LC Simplex
- o Data Rate: 1 Gbps (Gigabit Ethernet)
- o Hot-Pluggable: Allows replacement or upgrades without powering down equipment

Popular Models and Standards

- o 1000BASE-LX/LH SFP: Operates on single-mode fiber up to 10 km; compatible with multimode fiber using mode conditioning patch cables .
- o 1000BASE-EX SFP: Supports single-mode fiber spans up to 40 km; may require inline optical attenuators for short distances .
- o 1000BASE-ZX SFP: Designed for long-haul single-mode fiber links up to approximately 70 km, with an optical link budget of 21 dB .

Vendor Options

- o Cisco: Offers a wide range of single-mode SFP modules compatible with their switches and routers, including LX/LH, EX, and ZX models .
- o FS.com: Provides 1G SFP transceivers for distances from 100 m to 160 km, supporting 1000BASE-LX/LH and other standards .

Single-mode gigabit fiber optic transceiver model

- o Lanshack: Supplies 1 Gigabit single-mode SFP transceivers for distances from 10 km to 180 km, compatible with major networking devices .
- o Mouser Electronics: Stocks single-mode fiber optic transmitters, receivers, and transceivers with datasheets and pricing for various models .

Applications

Single-mode gigabit SFP transceivers are commonly used for:

- o Enterprise networks: Connecting switches and routers across large campuses
- o Data centers: High-speed uplinks and interconnects
- o Telecom networks: Long-distance backbone links
- o Metro networks: City-wide fiber connections These transceivers provide reliable, plug-and-play connectivity for professional networking environments, ensuring high-speed performance and long-distance reach without signal degradation . For selecting the right model, consider link distance, wavelength, connector type, and vendor compatibility with your existing network equipment.

netLINK Series Gigabit Fiber Converter can convert Optical-Electric Ethernet signals between 10/100/1000M UTP interface (TX) and

The MGB family consists of Small Form Factor Pluggable (SFP) transceiver modules that are specifically designed for high

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Finisar 1G SFP LR Universal Transceiver, 1310nm, -40 to 85°C, LC-Duplex, Singlemode, 10km, Multi-Vendor.

Cisco GLC-LH-SMD Compatible SFP Module - 1000BASE-LX/LH - 1GbE Single Mode Fiber SMF Optic

The Cisco's 10GBASE SFP+ modules (Figure 1) give you a wide variety of 10 Gigabit Ethernet connectivity options for

Utilizing LC connectors and operating at a 1310nm wavelength, it enables high-speed data transmission over single-mode fiber for

Versitron's single fiber media converters can transmit & receive over one fiber. This 10/100TX-100FX single fiber converter



The Single-mode gigabit fiber optic transceiver model

HTB-GS-03-A/B netLINK 1000M Single-mode Single Fiber Optic Ethernet Media Converter netLINK Series Gigabit Fiber Converter

Get the highest quality, performance-leading optical transceivers for any network architecture. Find the

The Gigabit stand-alone Ethernet Media Converter that provides cost effective, entry-level media

The transceiver is available as a mini-GBIC form factor, making it ideal for environments that require many

Perle SFP Optical Transceivers are designed for use with Perle SFP Media Converters, Industrial Ethernet Switches, IOLAN SCG

The LevelOne GVT-0301 is a 1.25 Gbps single-mode SFP transceiver delivering Gigabit Ethernet over

This installation note provides the installation instructions for the Cisco small form-factor pluggable (SFP) and SFP+

Small Form-factor Pluggable Small Form-factor Pluggable connected to a pair of fiber-optic cables Small Form-factor Pluggable

Web: <https://www.kremgroup.co.za>

